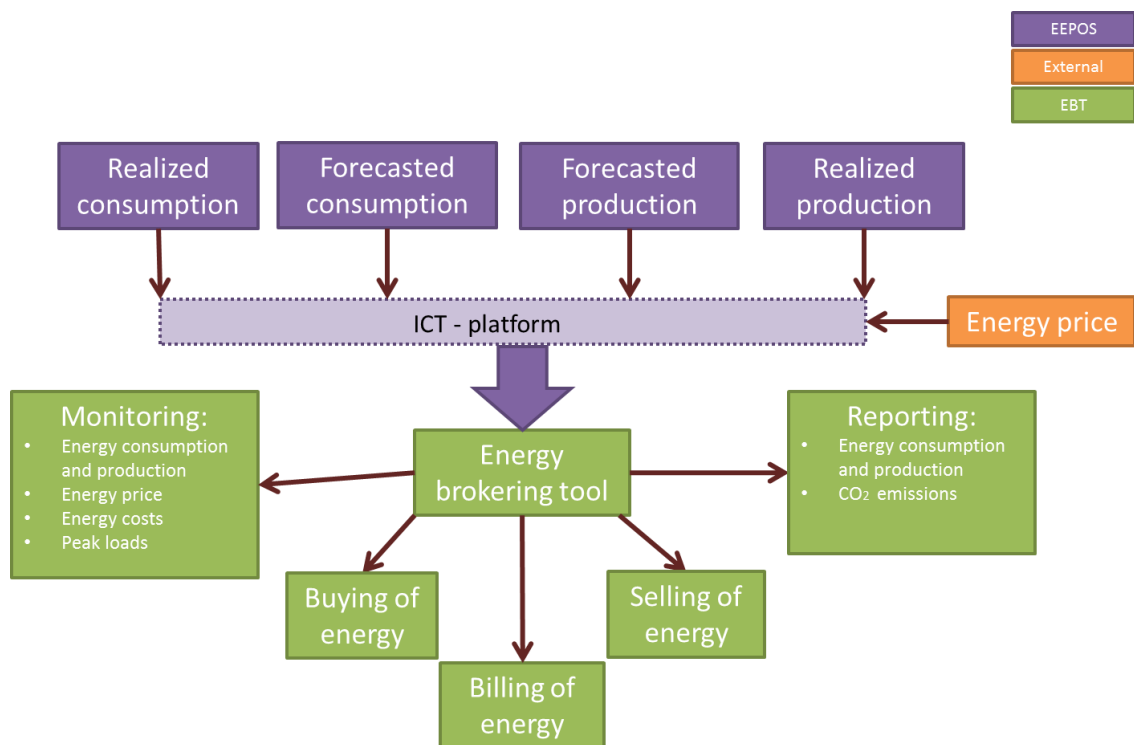


Energy brokering tool (EBT)

Technical documentation

Extended Summary



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1. PUBLISHABLE EXECUTIVE SUMMARY - EXTENDED

Energy brokering tool (EBT) is an application for facility managers and owners, energy brokers and facility maintenance personnel. EBT's most essential functions are energy brokering related but it will also provide other useful information for its user.

Profitable energy brokering requires information from the building and from the energy market. From the building we will need data from realized and forecasted energy consumption. The same applies with energy production, both realized and forecasted data is needed. After we know the building's demand (past and future) the next thing to do is to inspect whether it is profitable to buy energy from the grid or sell it to the grid.

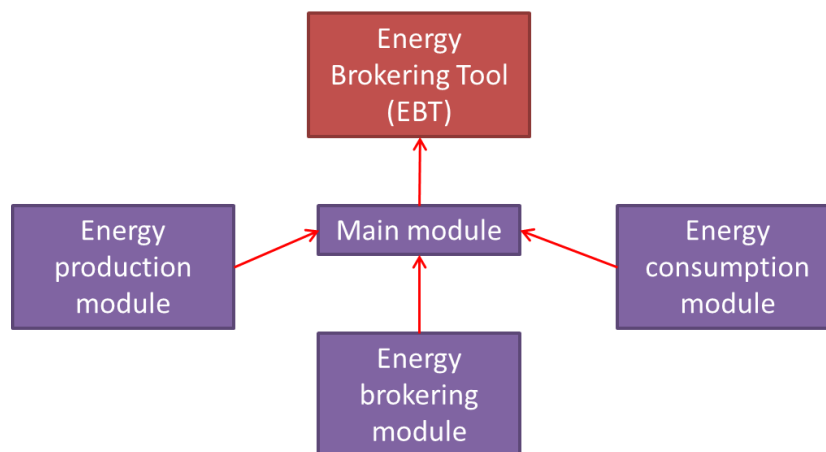
As there isn't always a need for energy on a single building level when there is production capacity available, it will be necessary to be able to handle energy brokering within a larger scale. Larger scale could be neighborhood level but it could be also considered grid level depending if it is possible to sell energy to the grid on the particular location.

EBT provides user-friendly user interface (UI) for monitoring consumption, production and energy price. It is also possible to monitor and report CO₂-emissions if there are the needed coefficients available for the different types of energy.

As there is different kind of functionalities in the EBT, it will be divided in to different modules: Energy consumption, energy production, energy brokering and main module, which is the actual UI of the EBT. Therefore it is possible to combine suitable UI for each stakeholder's use.

1.1 Specification

EBT tool was designed to utilize Fatman Origo Frame architecture. This is a new approach for our software family and started 6 months before the EBT implementation. Using this architecture gives an advantage during the implementation as most of the basic software modules are already created.

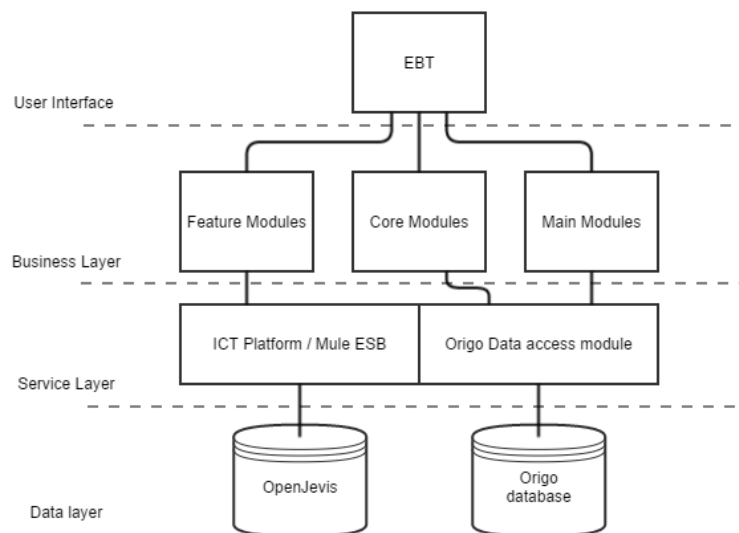


Most of the core modules were already in place when specification of the EBT started. Few minor updates were needed for some modules after the requirements were specified.

The actual EBT modules are called feature modules and includes modules like Consumption, Brokering, and Production and emission calculation.

1.2 Implementation

EBT uses two databases to store the data. Measurements and recorded sensor readings are stored in the OpenJEVIS platform that was specified and implemented in the task “Performance monitoring and operations planning tools” using the web interfaces it provides for reading and writing data. This will be done through the ICT platform as described in the task “ICT platform specification and implementation”. All the other data is stored in the Origo database using the functions provided by Origo data access module.

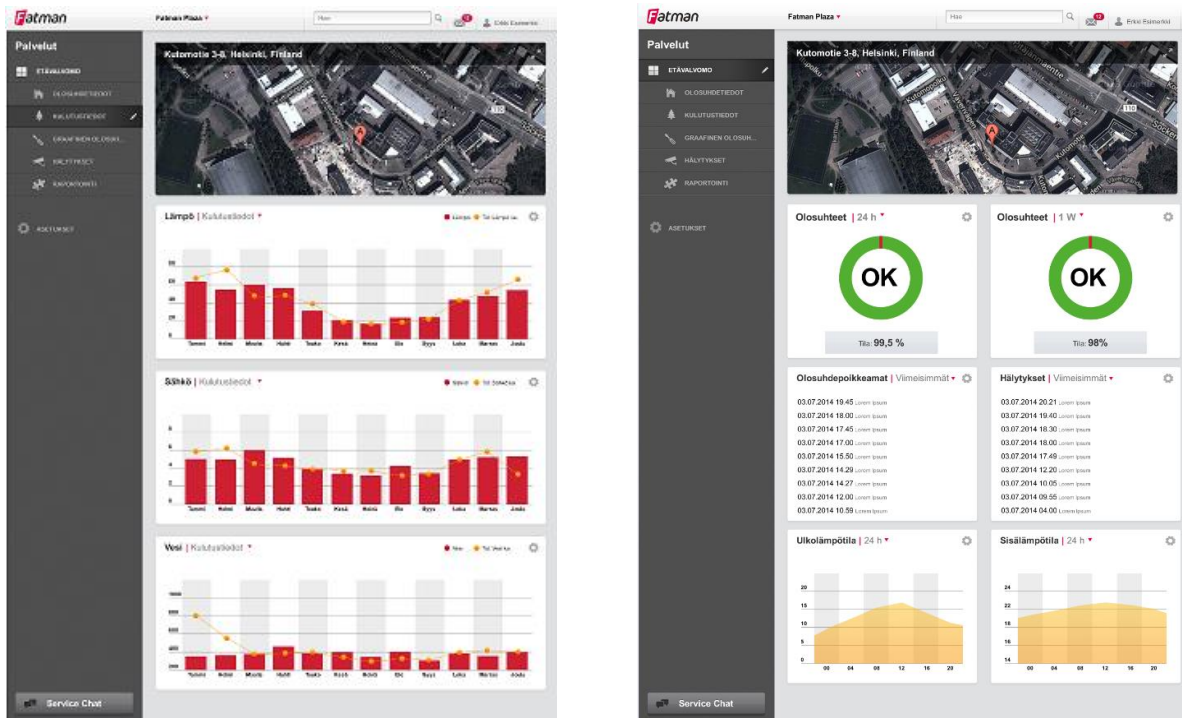


1.3 Demo and testing

User interface of the EBT is based on our Fatman Origo Frame- architecture. It is based on latest best practices on usability and user friendliness. Our UI designers spent lots of effort making sure the architecture would give as competitive products for at least next five years.



Making the UI responsive and scalable means it can fit most modern screens nicely even if the user uses mobile devices like smartphone or tablet.



The Finnish demonstration of the EEPOS project will be implemented in Merenkulkijanranta neighborhood in Lauttasaari Helsinki.

During the year 2014 we will be installing EBT tool to be used in the Finnish Demonstration.

1.4 Conclusions

There are lot of software and hardware available to make energy savings and more efficient buildings, but the real challenge is to combine all these together and create a working ecosystem like we are currently trying with the EEPOS project. I think we are on the right track as a whole EEPOS project but also with this EBT tool. We have only scratched the surface what is possible to achieve with the right tools and right system.

If we receive positive feedback from our Finnish demonstration and from our project affiliates we might consider continuing developing of the EBT tool further within our internal development track. Already some parts of the EBT tool are useful by themselves as reporting consumption values etc.